INFORMATION CITED BY APPLICANTS THAT MAY BE MATERIAL TO THE PROSECUTION OF THE SUBJECT APPLICATION

Applicants:	N.L. Haigwood	Attorney Docket No.: SBRI 122224/Haigwood 21nov03
Application No.: 10/719,004		Art Unit: 1653 / Confirmation No.: 9077
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Title:	AIDS VACCINES	

U.S. PATENT DOCUMENTS

None

FOREIGN PATENT DOCUMENTS

None

OTHER INFORMATION
(Including Author, Title, Date, Pertinent Pages, Etc.)

*Examiner Initial	Cite No.	
	O1	Barnett, S.W., et al., "The Ability of an Oligomeric Human Immunodeficiency Virus Type 1 (HIV-1) Envelope Antigen to Elicit Neutralizing Antibodies Against Primary HIV-1 Isolates Is Improved Following Partial Deletion of the Second Hypervariable Region," *Journal of Virology* 75(12):5526-5540, June 2001.
	O2	Barouch, D.H., et al., "Augmentation of Immune Responses to HIV-1 and Simian Immunodeficiency Virus DNA Vaccines by IL-2/Ig Plasmid Adminstration in Rehusus Monkeys," *Proceedings of the National Academy of Sciences* 97(8):4192-4197, April 2000.
	O3	Binley, J.M., et al., "A Recombinant Human Immunodeficiency Virus Type 1 Envelope Glycoprotein Complex Stabilized by an Intermolecular Disulfide Bond Between the gp120 and gp41 Subunits Is an Antigenic Mimic of the Trimeric Virion-Associated Structure, *Journal of Virology* 74(2):627-643, January 2000.
	O4	Brokstad, K.A., et al., "Cross-Reaction But No Avidity Change of the Serum Antibody Respones After Influenza Vaccination," *Vaccine* 13(16):1522-1528, 1995.

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O5 Burns, D.P., and R.C. Desrosiers, "Envelope Sequence Variation, Neutralizing Antibodies, and Primate Lentivirus Persistence," *Current Topics in Microbiology and Immunology 188*:185-219, 1994.

O6 Burns, D.P.W., et al., "Simian Immunodeficiency Virus Mutants Resistant to Serum Neutralization Arise During Persistent Infection of Rehsus Monkeys," *Journal of Virology 67*(7):4104-4113, July 1993.

O7 Burton, D.R., et al., "Efficient Neutralization of Primary Isolates of HIV-1 by a Recombinant Human Monoclonal Antibody," *Science 266*:1024-1027, November 1994.

O8 Cao, Y., et al., "Virologic and Immnologic Characterization of Long-Term Survivors of Human Immunodeficiency Virus Type 1 Infection," *New England Journal of Medicine 332*(4):201-208, Jan. 1995.

O9 Cecilia, D., et al., "A Longitudinal Study of Neutralizing Antibodies and Disease Progression in HIV-1-Infected Subjects," *Journal of Infectious Diseases 179*:1365-1374, 1999.

O10 Chackerian, B., et al., "Specific N-Linked and O-Linked Glycosylation Modifications in the Envelope V1 Domain of Simian Immunodeficiency Virus Variants That Evolve in the Host Alter Recognition by Neutralizing Antibodies," *Journal of Virology 71*(10):7719-7727, October 1997.

O11 Chen, B. et al., "Structure of an Unliganded Simian Immunodeficiency Virus gp120 Core," *Nature 433*:834-841, February 2005.

O12 Cheng-Mayer, C., et al., "Selection for Neutralization Resistance of the Simian/Human Immunodeficiency Virus $SHIV_{SF33A}$ Variant in Vivo by Virtue of Sequence Changes in the Extracellular Envelope Glycoprotein That Modify N-Linked Glycosylation," *Journal of Virology 73*(7):5294-5300, July 1999.

O13 Choisy, M., et al., "Comparative Study of Adaptive Molecular Evolution in Different Human Immunodeficiency Virus Groups and Subtypes, *Journal of Virology 78*(4):1962-1970, February 2004.

O14 Ciurea, A., et al., "Viral Persistence *In Vivo* Through Selection of Neutralizing Antibody-Escape Variants," *Proceedings of the National Academy of Sciences 97*(5):2749-2754, March 2000.

O15 Dacheux, L., et al., "Evolutionary Dynamics of the Glycan Shield of the Human Immunodeficiency Virus Envelope During Natural Infection and Implications For Exposure of the 2G12 Epitope," *Journal of Virology 78*(22):12625-12637, November 2004.

O16   D'Costa, S., et al., "Structural Features of HIV Envelope Defined by Antibody Escape Mutant Analysis," *AIDS Research and Human Retroviruses* *17*(12):1205-1209, 2001.

O17   Dehghani, H., et al., "Unique Pattern of Convergent Envelope Evolution in Simian Immunodeficiency Virus-Infected Rapid Progressor Macaques: Association With CD4-Independent Usage of CCR5," *Journal of Virology* *77*(11):6405-6418, June 2003

O18   Delwart, E.L., et al., "Slower Evolution of Human Immunodeficiency Virus Type 1 Quasispecies During Progression to AIDS," *Journal of Virology* *71*(10):7498-7508, October 1997.

O19   Doria-Rose, N.A., and N.L. Haigwood, "DNA Vaccine Strategies: Candidates for Immune Modulation and Immunization Regimens," *Methods 31*:207-216, 2003.

O20   Doria-Rose, N.A., et al., "Multigene DNA Priming-Boosting Vaccines Protect Macaques From Acute $CD4^{+}$-T-Cell Depletion After Simian-Human Immunodeficiency Virus SHIV89.6P Mucosal Challenge," *Journal of Virology 77*(21):11563-11577, November 2003

O21   Etemad-Moghadam, B., et al., "Characterization of Simian-Human Immunodeficiency Virus Envelope Glycoprotein Epitopes Recognized by Neutralizing Antibodies From Infected Monkeys, *Journal of Virology* *72*(10):8437-8445, October 1998.

O22   Fouts, T., et al., "Crosslinked HIV-1 Envelope-CD4 Receptor Complexes Elicit Broadly Cross-Reactive Neutralizing Antibodies in Rhesus Macaques," *Proceedings of the National Academy of Sciences 99*(18):11842-11847, September 2002.

O23   Garrity, R.R., et al., "Refocusing Neutralizing Antibody Response by Targeted Dampening of an Immunodominant Epitope," *Journal of Immunology* *159*:279-289, 1997.

O24   Geyer, H., et al., "Carbohydrates of Human Immunodeficiency Virus," *The Journal of Biological Chemistry, 263*(24):11760-11767, 1988

O25   Haigwood, N.L., et al., "Importance of Hypervariable Regions of HIV-1 gp120 in the Generation of Virus Neutralizing Antibodies," *AIDS Research and Human Retroviruses 6*(7):855-869, July 1990.
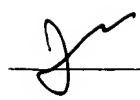
SBRI 122224\HAIGWOOD 21NOV03 IDS.DOC

O26 Haigwood, N.L., et al., "Native But Not Denatured Recombinant Human Immunodeficiency Virus Type 1 gp120 Generates Broad-Spectrum Neutralizing Antibodies in Baboons," *Journal of Virology 66*(1):172-182, Jan. 1992.

O27 Hirsch, V.M., et al., "Viral Genetic Evolution in Macaques Infected With Molecularly Cloned Simian Immunodeficiency Virus Correlates With the Extent of Persistent Viremia," *Journal of Virology 72*(8):6482-6489, August 1998.

O28 Kimata, J.T., et al., "Emerging Cytopathic and Antigenic Simian Immunodeficiency Virus Variants Influence AIDS Progression," *Nature Medicine 5*(5):535-541, May 1999.

O29 Kimura, T., et al., "Reconstitution of Spontaneous Neutralizing Antibody Response Against Autologous Human Immunodeficiency Virus During Highly Active Antiretroviral Therapy," *Journal of Infectious Diseases 185*:53-60, 2002.

O30 Koch, M., et al., "Structure-Based, Targeted Deglycosylation of HIV-1 gp120 and Effects on Neutralization Sensitivity and Antibody Recognition," *Virology 313*:387-400, 2003.

O31 Kwong, P.D., et al., "Structure of an HIV-1 gp120 Envelope Glycoprotein in Complex with the CD4 Receptor and a Neutralizing Human Antibody," *Nature 393*:648-659, June 1998.

O32 Land, A., and I. Braakman, "Folding of the Human Immunodeficiency Virus Type 1 Envelope Glycoprotein in the Endoplasmic Reticulum," *Biochimie 83*:783-790, 2001.

O33 Leonard, C.K., et al., "Assignment of Intrachain Disulfide Bonds and Characterization of Potential Glycosylation Sites of the Type 1 Recombinant Human Immunodeficiency Virus Envelope Glycoprotein (gp120) Expressed in Chinese Hamster Ovary Cells," *Journal of Biological Chemistry 265*(18):10373-10382, June 1990.

O34 Ljungberg, K., et al., "Enhanced Immune Responses After DNA Vaccination With Combined Envelope Genes From Different HIV-1 Subtypes," *Virology 302*:44-57, 2002.

O35 Long, E.M., et al., "HIV Type 1 Variants Transmitted to Women in Kenya Require the CCR5 Coreceptor for Entry, Regardless of the Genetic Complexity of the Infecting Virus," *AIDS Research and Human Retroviruses 18*(8):567-576, 2002.

O36   Ly, A., and L. Stamatatos, "V2 Loop Glycosylation of the Human Immunodeficiency Virus Type 1 SF162 Envelope Facilitates Interaction of This Protein with CD4 and CCR5 Receptors and Protects the Virus From Neutralization by Anti-V3 Loop and Anti-CD4 Binding Site Antibodies," Journal of Virology 74(15):6769-6776, August 2000.

O37   Mascola, J.R., et al., "Immunization With Envelope Subunit Vaccine Products Elicits Neutralizing Antibodies Against Laboratory-Adapted But Not Primary Isolates of Human Immunodeficiency Virus Type 1," *Journal of Infectious Diseases 173*:340-348, 1996.

O38   McCaffrey, R.A., et al., "N-Linked Glycosylation of the V3 Loop and Immunologically Silent Face of gp120 Protects Human Immunodeficiency Virus Type 1 SF162 From Neutralization by Anti-gp120 and Anti-gp41 Antibodies," *Journal of Virol*ogy 78(7):3279-3295, April 2004.

O39   Moog, C., et al., "Autologous and Heterologous Neutralizing Antibody Responses Following Initial Seroconversion in Human Immunodeficiency Virus Type 1-Infected Individuals," *Journal of Virology 71*(5):3734-3741, May 1997.

O40   Moore, J.P. and D.D. Ho, "HIV-1 Neutralization: The Consequence of Viral Adaptation to Growth on Transformed T-Cells," *AIDS 9*(supp A):S117-S136, 1995.

O41   Mori, K., et al., "Quintuple Deglycosylation Mutant of Simian Immunodeficiency Virus SIVmac239 in Rhesus Macaques: Robust Primary Replication, Tightly Contained Chronic Infection, and Elicitation of Potent Immunity Against the Parental Wild-Type Strain," *Journal of Virology 75*(9):4023-4028, May 2001.

O42   Ohgimoto, S., et al., "Location-Specific, Unequal Contribution of the N Glycans in Simian Immunodeficiency Virus gp120 to Viral Infectivity and Removal of Multiple Glycans without Disturbing Infectivity, *Journal of Virology 72*(10):8365-8370, October 1998.

O43   Poss, M., et al., "Evolution of Envelope Sequences from the Genital Tract and Peripheral Blood of Women Infected with Clade A Human Immunodeficiency Virus Type 1," *Journal of Virology 72*(10):8240-8251, October 1998.

O44   Putney, S.D., et al., "HTLV-III/LAV-Neutralizing Antibodies to an *E.coli*-Produced Fragment of the Virus Envelope," *Science 234:*1392-1395, December 1986.

O45 Quinones-Koch, M.I., et al., "Role of N-Linked Glycans in a Human Immunodeficiency Virus Envelope Glycoprotein: Effects on Protein Function and the Neutralizing Antibody Response," *Journal of Virology* 76(9):4199-4211, May 2002.

O46 Reimann, K.A., "An *env* Gene Derived From a Primary Human Immunodeficiency Virus Type 1 Isolate Confers High In Vivo Replicative Capacity to a Chimeric Simian/Human Immunodeficiency Virus in Rhesus Monkeys," *Journal of Virology* 70(5):3198-3206, May 1996.

O47 Reimann, K.A., et al., "A Chimeric Simian/Human Immunodeficiency Virus Expressing a Primary Patient Human Immunodeficiency Virus Type 1 Isolate *env* Causes an AIDS-Like Disease After In Vivo Passage in Rhesus Monkeys," *Journal of Virology* 70(10):6922-6928, October 1996.

O48 Richman, D.D., et al., "Rapid Evolution of the Neutralizing Antibody Response to HIV Type 1 Infection, " *Proceedings of the. National Academy of Sciences* 100(7):4144-4149, April 2003.

O49 Rudensey, L.M., et al., "Changes in the Extracellular Envelope Glycoprotein of Variants That Evolve During the Course of Simian Immunodeficiency Virus SIVMne Infection Affect Neutralizing Antibody Recognition, Syncytium Formation, and Macrophage Tropism but not Replication, Cytopathicity, or CCR-5 Coreceptor Recognition," *Journal of Virology* 72(1):209-217, January 1998.

O50 Scanlon, C.N., et al., "The Broadly Neutralizing Anti-Human Immunodeficiency Virus Type 1 Antibody 2G12 Recognizes a Cluster of $\alpha 1 \rightarrow 2$ Mannose Residues on the Outer Face of gp120," *Journal of Virology* 76(14):7306-7321, July 2002.

O51 Shankarappa, R., et al., "Consistent Viral Evolutionary Changes Associated with the Progression of Human Immunodeficiency Virus Type 1 Infection," *Journal of Virology* 73(12):10489-10502, December 1999.

O52 Stamatatos, L., and C. Cheng-Mayer, "An Envelope Modification That Renders a Primary, Neutralization-Resistant Clade B Human Immunodeficiency Virus Type 1 Isolate Highly Susceptible to Neutralization by Sera From Other Clades," *Journal of Virology* 72(10):7840-7845, October 1998.

O53 Stamatatos, L., et al., "Generation and Structural Analysis of Soluble Oligomeric gp140 Envelope Proteins Derived From Neutralization-Resistant and Neutralization-Susceptible Primary HIV Type 1 Isolates," *AIDS Research and Human Retroviruses* 16(10):981-994, 2000.

O54 Stamatos, N.M., et al., "Neutralizing Antibodies From the Sera of Human Immunodeficiency Virus Type 1-Infected Individuals Bind to Monomeric gp120 and Oligomeric gp140," *Journal of Virology 72*(12):9656-9667, December 1998.

O55 Steimer, K.S., et al., "Neutralization of Divergent HIV-1 Isolates by Conformation-Dependent Human Antibodies to Gp120," *Science 254*(5028):105-108, October 1991.

O56 Sullivan, N., et al., "CD4-Induced Conformational Changes in the Human Immunodeficiency Virus Type 1 gp120 Glycoprotein: Consequences for Virus Entry and Neutralization," *Journal of Virology 72*(6):4694-4703, June 1998.

O57 Sullivan, N., et al., "Effect of Amino Acid Changes in the V1/V2 Region of the Human Immunodeficiency Virus Type 1 gp120 Glycoprotein on Subunit Association, Syncytium Formation, and Recognition by a Neutralizing Antibody," *Journal of Virology 67*(6):3674-3679, June 1993.

O58 Wang, F.-X., et al., "Emergence of Autologous Neutralization-Resistant Variants From Preexisting Human Immunodeficiency Virus (HIV) Quasi Species During Virus Rebound in HIV Type 1-Infected Patients Undergoing Highly Active Antiretroviral Therapy," *Journal of Infectious Diseases 185*:608-617, 2002.

O59 Wang, L.-X., et al., "Binding of High-Mannose-Type Oligosaccharides and Synthetic Oligomannose Clusters to Human Antibody 2G12," *Chemistry & Biology 11*(1):127-134, January 2004.

O60 Wei, X, et al., "Emergence of Resistant Human Immunodeficiency Virus Type 1 in Patients Receiving Fusion Inhibitor (T-20) Monotherapy, *Antimicrobial. Agents and Chemotherapy 46*(6):1896-1905, June 2002

O61 Wei, X., et al., "Antibody Neturalization and Escape by HIV-1," *Nature 422*:307-312, March 2003.

O62 Willey, R.L., et al., "Differential Glycosylation, Virion Incorporation, and Sensitivity to Neutralizing Antibodies of Human Immunodeficiency Virus Type 1 Envelope Produced From Infected Primary T-Lymphocyte and Macrophage Cultures," *Journal of Virology 70*(9):6431-6436, September 1966.

O63 Wolinsky, S.M., et al., "Adaptive Evolution of Human Immunodeficiency Virus-Type 1 During the Natural Course of Infection," *Science 272*(5261):537-542, April 1996.

O64 Wyatt, R., and J. Sodroski, "The HIV-1 Envelope Glycoproteins: Fusogens, Antigens, and Immunogens," Science 280:1884-1888, June 1998.

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O65 Wyatt, R., et al., "Involvement of the V1/V2 Variable Loop Structure in the Exposure of Human Immunodeficiency Virus Type 1 gp120 Epitopes Induced by Receptor Binding," *Journal of Virology* 69(9):5723-5733, September 1995.

O66 Wyatt,R., et al., "The Antigeneic Structure of the HIV gp120 Envelope Glycoprotein," *Nature* 393:705-711, June 1998.

O67 Zhang,M., et al., "Tracking Global Patterns of N-Linked Glycosylation Site Variation in Highly Variable Viral Glycoproteins: HIV, SIV, and HCV Envelopes and Influenza Hemagglutinin," *Glycobiology* 14(12):1229-1246, June 2004.

O68 Zhu, X., "Mass Spectrometric Characterization of the Glycosylation Pattern of HIV-gp120 Expressed in CHO Cells," *Biochemistry* 39:11194-11204, 2000.

O69 Zolla-Pazner, S., "Identifying Epitopes of HIV-1 That Induce Protective Antibodies," *Nature Reviews* 4:199-210, March 2004.

O70 Zwick, M.B., et al., "A Novel Human Antibody Against Human Immunodeficiency Virus Type 1 gp120 Is V1, V2, and V3 Loop Dependent and Helps Delimit the Epitope of the Broadly Neutralizing Antibody Immunoglobulin G1 b12, " *Journal of Virology* 77(12):6965-6978, June 2003.

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